Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

U.S. DEPARTMENT OF AGRICULTURE

504

1
Ag84L
Cop. 2

U. S. DEPT. OF AGRICULTURE
LIBRARY
JUN 1 4 1962
CURRENT SERIAL RECORDS

LEAFLET NO. 504

CONTROLLING GREEN JUNE BEETLE LARVAE IN TOBACCO PLANT BEDS

CONTROLLING GREEN JUNE BEETLE LARVAE IN TOBACCO PLANT BEDS

Larvae (grubs) of the green June beetle[1] are serious pests of tobacco plant beds in Virginia, North Carolina, South Carolina, Tennessee, Georgia, and Kentucky; they cause some damage in several other tobacco-growing States.

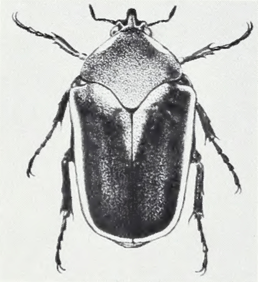
The larvae tunnel through soil in search of food. They uproot many plants and feed on the rootlets of seedlings.

When the larvae occur in large numbers, they will seriously damage tobacco plant beds unless they are controlled by insecticides or soil fumigants.

DEVELOPMENT AND HABITS

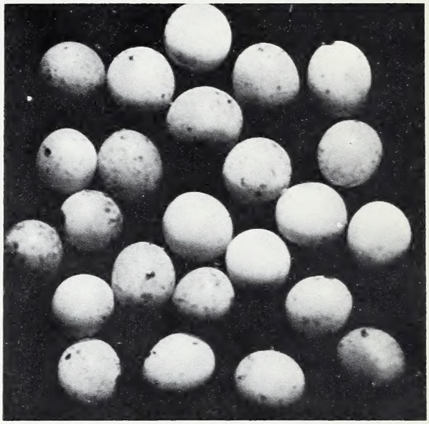
The green June beetle develops in four stages—egg, larva, pupa, and adult.

Female beetles lay eggs in tobacco plant beds during summer months. Eggs are gray or dull white, oval to spherical, and measure 1/16 to 1/8 inch in diameter. Each egg is enclosed in a small ball of dirt. A female may lay as many as 15 or 20 eggs close together. They hatch into larvae in a few days.



BN-13690

Adult of the green June beetle.



BN-13689-X

Eggs of the green June beetle.

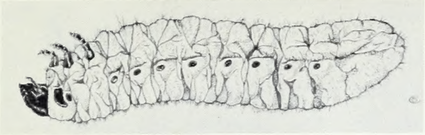
Newly hatched larvae are about 1/5 inch long, and creamy white. The head is yellowish white, and later becomes dark brown at its widest part. Young larvae grow rapidly, and shed their skins twice during the summer. They become about two-thirds grown by the end of September or first part of October, and complete their growth the following spring. Fully grown larvae are about 2 inches long and 1/2 inch wide.

Larvae of the green June beetle have the unusual habit of crawling on their backs, which makes them easy to identify.

When fully grown, larvae change into pupae in the soil, in oval cocoons or cells

---

[1] *Cotinis nitida.*



BN-13688-X

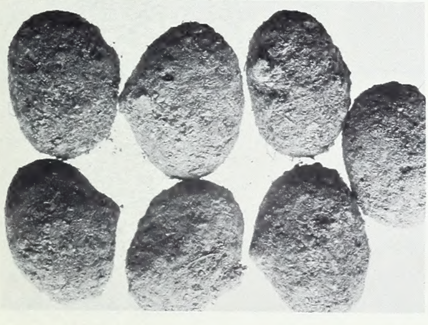
Larva of the green June beetle. It crawls on its back.

that they construct by cementing soil particles together with a sticky fluid that they excrete. Pupae are about 1 inch long and ½ inch wide. They are white when first formed, but gradually become darker and take on some of the coloring of the adult. The pupal, or resting, stage occurs in April and May, and the adults emerge in June and July.

Adults are robust, hard-shelled beetles, ¾ to 1 inch long. Usually they are velvety green on the top side, and shining green and orange yellow on the underside.

Generally, the beetles first appear in June. They become increasingly abundant in July and August, and gradually disappear in September.

Female beetles are strongly attracted to humus, decaying plants, and manure as materials in which to lay their eggs. These are ideal foods for developing larvae, and account for the heavy infestations that occur in tobacco plant beds.



BN-13687-X

Pupal cells of the green June beetle. The pupa changes to a beetle in these cells.

DAMAGE

Green June beetle larvae cause some damage by feeding on young, tender rootlets of plants. They cause the most serious damage, however, by their continual boring and tunneling through the soil in search of food.

The larvae live in burrows several inches below the soil surface. At night and on very cloudy days they frequently come to, or near, the surface to feed. When they are large, they may uproot many plants.

Larval damage can be particularly serious in tobacco plant beds because in spring, when the beds are started, the larvae are nearly full grown. A severe infestation may ruin a plant bed.

In addition to injuring tobacco, the larvae of this insect injure many other field crops, such as corn, oats, sorghum, and alfalfa. They also injure strawberries, vegetable crops, ornamental plants, lawns, and trees.

CHEMICAL CONTROL

You can control green June beetle larvae by using a soil fumigant, a drench, a poisoned bait, or a dust mixture.

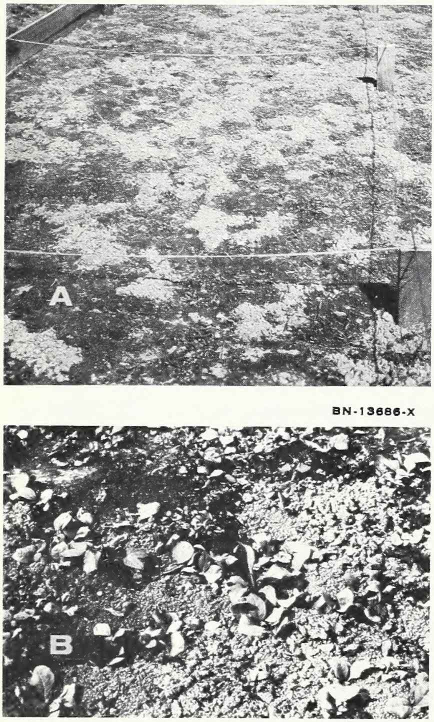
Fumigation will kill all larvae that are in the soil if the fumigant is applied to the entire bed area before it is seeded.

Drenches, baits, and dusts give very satisfactory control, and need to be applied only to areas that the larvae have uprooted. When these materials are used, many dead and dying larvae appear on the surface of the soil for several days after it has been treated.

The best time for chemical treatment is in the fall when plant-bed sites are being prepared for seeding. By spring, the larvae are nearly full grown and are hard to kill. Some insecticides are quite effective in killing larvae when they are small, but are only partially effective in killing them in tobacco plant beds in the spring. However, the insecticides recommended in this publication will kill larvae of all sizes.

Fumigant

Methyl bromide, properly applied as a soil fumigant for control of weeds on plant-bed sites, will rid the beds of larvae. Apply it before the bed area is seeded. For best results, thoroughly plow or disk the soil and level it before treatment. Use a polyethylene cover to retain the fumes, and fumigate the entire area with methyl bromide at the rate of 9 pounds to each 100 square yards.



BN-13686-X

BN-13691-X

A, *Part of a tobacco plant bed uprooted by green June beetle larvae before plants appeared.*

B, *Part of bed where plants have been destroyed by burrowing of the larvae.*

Drenches

Probably the simplest and easiest way to control larvae is to use a drench. You can prepare an effective drench by mixing water with a 50-percent soluble powder of Dylox, or a wettable powder that contains 50 percent of Sevin or 25 percent of Thiodan or Diazinon; use only one of these materials. Mix 1 pound of the powder in each 100 gallons of water. You may use an ordinary sprinkling can to pour the mixture over the soil surface at the first sign of uprooting. Apply it any time of the day, at the rate of 1 gallon to each square yard.

Baits

A poisoned bait can give excellent control. Its disadvantage is that the user must prepare it.

To prepare a bait, mix 1 pound of 50-percent Dylox soluble powder with each 25 pounds of wheat middlings (sold as hog feed). Mix the insecticide and wheat middlings thoroughly. Then, while stirring, slowly add enough water to make a crumbly mash; 2 to 2½ gallons of water will be needed.

Before applying bait, sprinkle the area to be treated with water; this increases burrowing activity of the larvae, and makes it more likely that they will obtain the bait.

Spread the bait broadcast in the afternoon, at the rate of 18 pounds wet weight to each 100 square yards of uprooted area.

Dusts

A dust mixture is not as effective as a drench or poisoned bait. If you use a dust, it should contain 5 percent of Dylox. Apply it only to uprooted areas, at the rate of 4 to 5 pounds to each 100 square yards. A light rain following the application of a dust mixture increases the effectiveness of the treatment by washing the insecticide into the burrows where larvae are present.

PRECAUTIONS

Insecticides are poisonous; handle them with care. Follow directions and heed all precautions on container labels. Keep insecticides in closed, well-labeled containers where children or pets cannot reach them.

In handling any insecticide avoid repeated or prolonged contact with the skin, and avoid prolonged inhalation of dust or mist. Wash hands and face before eating or smoking.

Take special precautions when handling insecticide in concentrated form. Avoid spilling concentrates on the skin, and keep them out of the eyes, nose, and mouth. If you should spill any concentrate, wash it off the skin, and change contaminated clothing immediately. If any concentrate should get in your eyes, rinse them with plenty of water for 15 minutes and get medical attention.

Diazinon and Thiodan can be absorbed through the skin in harmful quantities. When working with these insecticides in any form, take the same precautions as with concentrates.

Methyl bromide is extremely poisonous and may cause death if inhaled or absorbed through the skin. This highly toxic fumigant should be applied only by a person thoroughly familiar with its hazards who will assume full responsibility for safe use and comply with all precautions on the label.

NATURAL ENEMIES

The green June beetle has insect enemies that help keep its populations under control. One of the most important is a parasitic digger wasp that lays its eggs in green June beetle larvae, which causes them to die. The numbers of parasites, and their control values, fluctuate greatly from year to year.

Cultural Control

You can reduce the danger of severe infestations of green June beetle larvae in tobacco plant beds by eliminating manure, cottenseed meal, and decomposing vegetation from plant-bed areas. These materials strongly attract female beetles when they are laying eggs, and serve as preferred food for developing larvae.

By Norman Allen *and* C. S. Creighton,
Entomology Research Division,
Agricultural Research Service

UNITED STATES DEPARTMENT OF AGRICULTURE
1862 1962
Growth Through Agricultural Progress

Washington, D.C. Issued April 1962

For sale by the Superintendent of Documents, U.S. Government Printing Office,
Washington 25, D.C. — Price 5 cents.

U.S. GOVERNMENT PRINTING OFFICE : 1962—O-623367